

We Claim:

1. A superabsorbent composition, comprising:

a superabsorbent material having a glass transition temperature higher than the temperature of use; and

5 an elastomer having a glass transition temperature lower than the temperature of use;

the superabsorbent material and the elastomer are in a two-phase superabsorbent composition wherein the superabsorbent material is in a first phase and the elastomer is in a second phase.

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2. The superabsorbent composition of Claim 1, wherein the superabsorbent material comprises a cross-linked partially neutralized polyacrylic acid.

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3. The superabsorbent composition of Claim 1, wherein the first phase superabsorbent material is a continuous phase and the second phase elastomer is a dispersed phase.

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4. The superabsorbent composition of Claim 1, wherein the first phase superabsorbent material is a dispersed phase and the second phase elastomer is a continuous phase.

5. The superabsorbent composition of Claim 1, wherein the superabsorbent material is derived from a precursor solution comprising a copolymer containing a latent crosslinker.

5 6. The superabsorbent composition of Claim 5, wherein the latent crosslinker ranges from 1 to 8% by weight.

7. The superabsorbent composition of Claim 5, wherein the latent crosslinker ranges from 2 to 6% by weight.

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8. The superabsorbent composition of Claim 5, wherein the latent polymerizable crosslinker comprises a comonomer selected from α,β -ethylenically unsaturated comonomers having an additional functional group capable of reacting with carboxyl groups.

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9. The superabsorbent composition of Claim 8, wherein the latent polymerizable crosslinker comprises a comonomer selected from aminopropyl vinyl ether, ethylene glycol allyl ether, 2-hydroxyethyl methacrylate, and ethylene glycol vinyl ether.

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10. The superabsorbent composition of Claim 5, wherein the copolymer comprises acrylic acid and a polymerizable crosslinker.

11. The superabsorbent composition of Claim 1, wherein the superabsorbent material is derived from a precursor solution comprising a superabsorbent precursor and a nonpolymerizable crosslinker.

5 12. The superabsorbent composition of Claim 11, wherein the nonpolymerizable crosslinker comprises a compound selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, polyethelene glycol, polyvinyl alcohol, polyethylele oxide, glycerol, 1,3-propanediol, 1,4-butanediol, 1,5-pentanediol, 1,6-hexanediol, 1,8-octanediol, 1,1,1-trimethylolpropane,
10 1,4-butanediamine, 1,5-pentanediamine, 1,6-hexanediamine, diethylenetriamine, and analogs and derivatives thereof.

13. The superabsorbent composition of Claim 12, wherein the nonpolymerizable crosslinker comprises a compound having at least 2 functional
15 groups capable of reacting with carboxyl groups.

14. The superabsorbent composition of Claim 11, wherein the nonpolymerizable crosslinker ranges from 1 to 8% by weight.

20 15. The superabsorbent composition of Claim 11, wherein the nonpolymerizable crosslinker ranges from 2 to 6% by weight.

16. The superabsorbent composition of Claim 1, the superabsorbent material further comprising a crosslinked and partially hydrolyzed copolymer of an α -olefin with one of an α,β -ethylenically unsaturated organic acid anhydride and ester.

5 17. The superabsorbent composition of Claim 16, wherein the crosslinked and partially hydrolyzed copolymer of an α -olefin with one of an α,β -ethylenically unsaturated organic acid anhydride and ester comprises a crosslinked and partially hydrolyzed copolymer of isobutylene and maleic anhydride.

10 18. The superabsorbent composition of Claim 16, wherein the superabsorbent material is derived from a partially hydrolyzed copolymer of an α -olefin with one of an α,β -ethylenically unsaturated organic acid anhydride and ester and a nonpolymerizable latent crosslinker.

15 19. The superabsorbent composition of Claim 18, wherein the superabsorbent material is derived from a partially hydrolyzed copolymer of isobutylene and maleic anhydride and a nonpolymerizable latent crosslinker.

20 20. The superabsorbent composition of Claim 1, wherein the superabsorbent material comprises one of the group consisting of hydrolyzed starch-acrylonitrile graft copolymers, partially neutralized starch-acrylonitrile graft copolymers, partially neutralized saponified vinyl-acetate acryl-ester copolymers,

hydrolyzed acronitrile copolymers, carboxymethyl cellulose, carboxymethyl starch, chitosan salts, partially neutralized polyaspartic acid, polyquarternary ammonium salts, polyvinyl amines, polyvinyl imines, and combinations thereof.

5 21. The superabsorbent composition of Claim 1, wherein the elastomer is derived from a latex emulsion.

 22. The superabsorbent composition of Claim 1, wherein the elastomer has a glass transition temperature below room temperature.

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 23. The superabsorbent composition of Claim 1, wherein the elastomer has a glass transition temperature less than about 25°C.

 24. The superabsorbent composition of Claim 1, wherein the
15 elastomer has a glass transition temperature less than about 0°C.

 25. The superabsorbent composition of Claim 1, wherein the elastomer has a glass transition temperature less than about -25°C.

20 26. The superabsorbent composition of Claim 1, wherein the superabsorbent composition comprises a film.

27. The superabsorbent composition of Claim 1, wherein the superabsorbent composition comprises a particle.

28. The superabsorbent composition of Claim 27, wherein the
5 particle has a size of 50 to 1,000 microns.

29. The superabsorbent composition of Claim 27, wherein the particle has a size of 150 to 800 microns.

10 30. The superabsorbent composition of Claim 1, wherein the superabsorbent composition comprises a fiber.

31. The superabsorbent composition of Claim 30, wherein the fiber has a diameter of 0.1 to 100 microns.

15 32. The superabsorbent composition of Claim 30, wherein the fiber has a diameter of 1 to 70 microns.

20 33. The superabsorbent composition of Claim 30, wherein the fiber has a diameter of 5 to 50 microns.

34. A personal care absorbent article comprising the superabsorbent composition of Claim 1.

35. A protective garment comprising the superabsorbent composition
5 of Claim 1.

36. The film of Claim 37, wherein the elastomer has a glass transition temperature below about 25°C.

10 37. A method for producing the superabsorbent composition of Claim 1, the method comprising:

mixing a superabsorbent precursor and a latex emulsion to form a mixture including a dispersed elastomer phase and a continuous superabsorbent phase;

forming a composition from the mixture;

15 drying the composition; and

crosslinking the composition by one of heat curing, electron beam, microwave, and combinations thereof.